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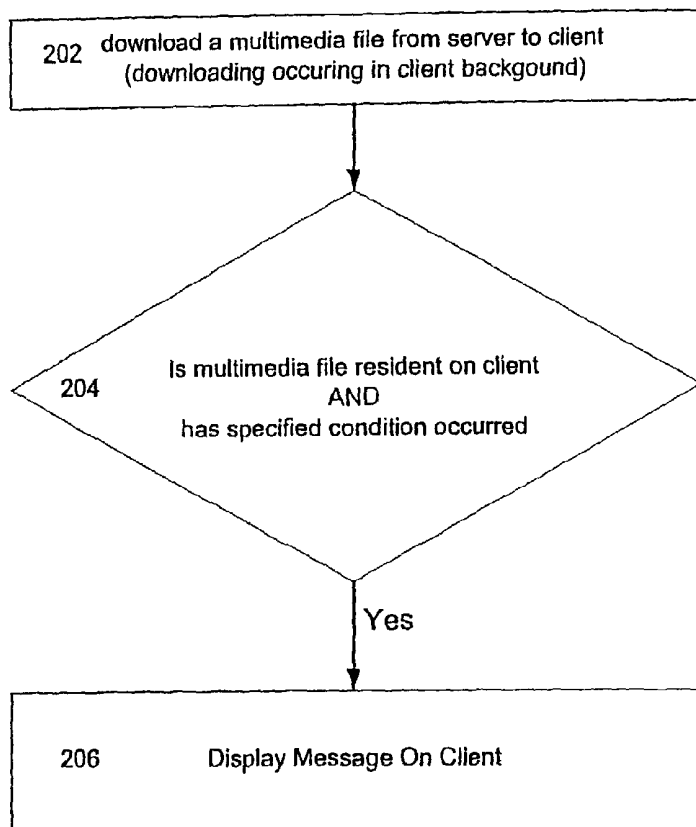
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(54) Title: MULTIMEDIA NETWORK DELIVERY AND PLAYBACK SYSTEM



(57) Abstract: A method for delivering multimedia content on a network. A multimedia file is downloaded from a remote server to a client on a network, the downloading occurring in client's background. A message is displayed on a screen of the client after the multimedia file is resident in the client and additionally contingent upon the occurrence of a specified condition. The message can be a pop-up desktop message. By clicking on the message, the client can then be directed to a web site. Whereupon the multimedia file resident on the client is played back in the context of the web site.



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Multimedia Network Delivery and Playback System

Field of the Invention

This invention generally relates to multimedia delivery from a remote server to a client on a network and more particularly, to downloading a multimedia file in the client's background.

Background of the Invention

Data delivery over a network is raising new issues particularly, as data files, such as multimedia files, get larger. Often, the user will elect to simply download the multimedia file, rather than stream data on slow connections which causes playback to be choppy. Once the entire file is downloaded on the client computer, the file can be played by the user using the appropriate viewer. However, one problem with this approach is that multimedia files can take minutes and sometimes hours to retrieve, stretching the patience of the user. Additionally, the user typically views the multimedia file at an arbitrary time after completion of the download procedure outside the context of a web page. The user, or just as importantly, a sponsoring web site, may wish instead to have the downloaded resident, multimedia file viewed at a prescheduled time in the future, and/or hosted within the context of a web page.

Summary of the Invention

In accordance with one aspect of the invention, a method for delivering multimedia content on a network is presented. To that end, a multimedia file is downloaded from a remote server to a client on a network, the downloading occurring in client's background. A message on a screen of the client is displayed after the multimedia file is resident in the client and additionally contingent upon the occurrence of a specified condition.

In a related embodiment of the invention, software is installed to create the client for downloading the multimedia file. This software installation can be initiated by the user clicking on a button on a web site of the remote server, the software being downloaded from the remote server.

In another related embodiment, the message can be displayed immediately after

downloading, or can be displayed based on a duration of time, or in coordination with an external event. The external event can be a broadcast, or in another medium such as television.

In another related embodiment, the multimedia capabilities of the client are determined prior to downloading, and the remote server is directed to download the multimedia in an optimal format. Capabilities determined can include resolution and video codec type.

In another related embodiment the message is a pop-up desktop message. By clicking on the message, the client can be directed to a web site. The web site can be at the remote server. Furthermore the multimedia file resident on the client can be played back in the context of the web site.

In another embodiment of the invention, a computer program product for use in a computer system for delivering multimedia content on a network is presented. The computer program product is a computer usable medium having computer readable program code. The program code downloads a multimedia file from a remote server to a client on a network, the downloading occurring in client's background. A message on a screen of the client is displayed after the multimedia file is resident in the client and additionally contingent upon the occurrence of a specified condition. The message may be a pop-up desktop message. By clicking on the message the client may be directed to a web site.

The multimedia file resident on the client can then be played back in the context of the web site.

In yet another embodiment of the invention, a system for delivering multimedia content on a network is presented. A remote server and a client are operatively coupled to a network. The server downloads a multimedia file to the client, the downloading occurring in the client's background. A message is then displayed on a screen of the client after the multimedia file is resident in the client and additionally contingent upon the occurrence of a specified condition.

Brief Description of the Drawings

The foregoing features of the invention will be more readily understood by reference to the following detailed description, taken with reference to the accompanying drawings in which:

Figure 1 shows a standard prior art system of a client and server on a network:

Figure 2 shows a flowchart of a method for downloading a multimedia file according to one embodiment of the invention:

Figure 3 shows a flowchart system for playing back a multimedia file residing on client, in accordance with one embodiment of the invention.

Description of Preferred Embodiments

Definitions: As used in this description and the accompanying claims, the following terms shall have the meanings indicated, unless the context otherwise requires:

(i) The term "platform" as used herein refers to any device, including but not limited to a personal digital assistant (PDA) (handheld device), a computer system, wireless device, or workstation that is capable of interfacing with the network.

(ii) The term "client" as used herein refers to any platform having enabling technology (i.e., software code and/or hardware components), in a client/server architecture on a network that optionally persistently and automatically requests and or receives files or services. The World Wide Web (or 'web') is an example of a network and will be used representatively herein and in any appended claims. The client typically contains a user interface. The client may include but is not limited to hardware, software, operating system applications, databases, and TCP/IP protocols.

(iii) The term "server" as used herein refers to any PDA, computer, workstation or other device in a client/server architecture that is shared by multiple users and provides files or services to a community of "peer" users in a network all receiving and sharing copies of the same files or services. A server may provide World Wide Web services on the Internet. A server may include, but is not limited to the hardware, software, databases, applications, operating system, Web server software, TCP/IP protocols and the Web site content (Web pages). A server may be a remote PDA, computer system, or workstation serving a community of "peer" users in a network, or it may also be a PDA, computer system, workstation, or other device that is also a "host" to any "client" in the community of peer users in a network. Individual users may receive copies of files or services transmitted to the client by multiple, distributed servers in the network.

(iv) The term "background process" as used herein refers to a process running on a multitasking computer. A multitasking computer is capable of executing several tasks, or

programs, at the same time. In some multitasking systems, one of the processes is called the foreground process, and the others are called background processes. The foreground process is the one that accepts input from the keyboard, mouse, or other input device. Background processes cannot accept interactive input from a user but they can, for example, access data stored on a disk and write data to the video. In addition, many communication programs are designed to run in the background.

(v) A "pop-up desktop message" as used herein defines a message that suddenly appears on the desktop of a computer monitor screen. Typically, the pop-up desktop message stays on the screen until a user action, such as clicking on a button/command within the pop-up desktop message. It then disappears.

(vi) "Multimedia" as used herein refers to a signal or its content that can be presented. Not limited in format or type, multimedia can, for example, use sound, pictures, and text to make presentation.

The present invention provides for copying multimedia files in the background of a client from a media server to a user's machine. When the background download is completed and contingent on a specified event, the user receives a message type item on their screen, which when clicked on, delivers the user to a sponsoring web site whereupon the media content can be played within or alongside the context of an associated web page.

In preferred embodiments, a server 1 and a client 5 are connected to a network 3 as shown in Fig. 1. The user on the client 5 desires to download a multimedia file from the server 1, and initiates the downloading of the multimedia file from the server 1 to the client 5 through the network 3. The downloading of the multimedia file is performed as a background process, allowing the user to carry on with other activities, such as email or surfing the World Wide Web.

A persistent desktop object (software) may be installed on the client 5. In accordance with various embodiments of the invention, this desktop object is installed by the user prior to downloading, and initiated from the server's 1 web page, for example, by clicking on the appropriate button. Once the desktop object is installed, the client can interface with web sites that have enabled their sites for this technology. Additionally once the desktop object is installed future downloading of multimedia files from various servers may advantageously use the already installed desktop object.

Prior to downloading, the multimedia capabilities of the client 5 can be determined by

the client and forwarded to the server 1. In this manner, the multimedia file can be advantageously downloaded in the best available format and in a manner that optimizes available network bandwidth. The client will persistently monitor network activity and corresponding bandwidth availability. The client will automatically 'harvest' underutilized, off-peak bandwidth to initiate, execute, and complete transmissions of multimedia files and services in the background, according to whatever delivery parameters are associated with each content transmission. The client will dynamically adjust transmission rates and activity to limit interference with foreground processes and to ensure optimal performance of the user's PDA, computer system, workstation or other device where the client resides. Multimedia capabilities such as client resolution and type of codec, can be forwarded in this matter.

Referring to Fig. 2, upon completion of the downloading process 202, the file is resident on the client. Depending on the occurrence of a specified condition 204 a self-initiating message is then displayed 208 at the client's display which can prompt the user to view the multimedia file. This specified condition, as defined by the client or the server, could be based on duration of time. For example the user wishes to view the multimedia file when the children are asleep. The message may also coincide with an external event. This external event can be an event occurring on the Internet, or any other medium. For instance, the message could be displayed immediately prior to the opening night of a movie, to the debut of an album or the start of a major sporting event. The external event could be an event on the Internet, or any other medium such as television. The message can also be displayed immediately after downloading if so desired.

The message displayed at the client may be a pop-up desktop message 302. By clicking on the pop-up 304, the user can acknowledge a desire to play the multimedia file. Alternatively, the user can decline playing of the file 306. Upon positive acknowledgement, the multimedia file is played at the client. Furthermore, the user may be redirected to the original, content-sponsoring web site, or any other web site 310. In this manner, the multimedia file can be played in the context of a given web page.

In a typical scenario, a user goes to a sports web page to download video highlights of a game. The user clicks on a button on the web page and software is installed on the client to assist in the downloading. The user or the sponsoring web site specifies the desire to view the highlights later that night. User then continues to use the client, perhaps by

checking his EMAIL, while the highlights of the game are downloaded to the client in the background. Later that night, at the time specified, a pop-up desktop message appears at the client, indicating that the highlights have been downloaded and are available for viewing. Upon the user acknowledging the desire to play the highlights the user is delivered to the sports web page. This web page may be a standard, existing web page or a page that the server of the sports web page has specifically developed to host this video presentation. Various embodiments of the invention may be implemented as a computer program product for use with a computer system. Such implementation may include a series of computer instructions fixed either on a tangible medium, such as a computer readable media (*e.g.*, a diskette CD-ROM, ROM or fixed disk), or fixed in a computer data signal embodied in a carrier wave that is transmittable to a computer system via a modem or other interface device, such as a communications adapter connected to a network over a medium. The medium may be either a tangible medium (*e.g.*, optical or analog communications lines) or a medium implemented with wireless techniques (*e.g.*, microwave, infrared or other transmission techniques). The series of computer instructions embodies all or part of the functionality previously described herein with respect to the system. Those skilled in the art should appreciate that such computer instructions can be written in a number of programming languages for use with many computer architectures or operating systems. Furthermore such instructions may be stored in any memory device, such as semiconductor, magnetic, optical or other memory devices, and may be transmitted using any communications technology, such as optical, infrared, microwave, or other transmission technologies. It is expected that such a computer program product may be distributed as a removable medium with accompanying printed or electronic documentation (*e.g.* shrink wrapped software), preloaded with a computer system (*e.g.* on system ROM or fixed disk), or distributed from a server or electronic bulletin board over the network (*e.g.*, the Internet or World Wide Web).

The present invention may be embodied in other specific forms without departing from the true scope of the invention. The described embodiments are to be considered in all respects only as illustrative and not restrictive.

What is claimed is:

1. A method for delivering multimedia content on a network comprising:
downloading a multimedia file from a remote server to a client on a network,
the downloading occurring in client's background; and
displaying a message on a screen of the client after the multimedia file is
resident in the client and additionally contingent upon the occurrence of a specified condition.
2. A method for delivering multimedia content on a network according to claim
1, wherein prior to the step of downloading, the method further comprises installing software
on the client for downloading said multimedia file.
3. A method for delivering multimedia content on a network according to claim
2, wherein the step of installing the software is initiated by the user clicking on a button on a
web site of the remote server, the software being downloaded from the remote server.
4. A method for delivering multimedia content on a network according to claim 1
wherein, the message is displayed immediately after downloading.
5. A method for delivering multimedia content on a network according to claim 1
wherein the message is displayed based on a duration of time.
6. A method for delivering multimedia content on a network according to claim
5, wherein the message is displayed based on coordination with an external event.
7. A method for delivering multimedia content on a network according to claim
6, wherein the external event is a broadcast.
8. A method for delivering multimedia content on a network according to claim
6, wherein the external event is in another medium.

9. A method for delivering multimedia content on a network according to claim 8 wherein the another medium is television.
10. A method for delivering multimedia content on a network according to claim 1, wherein prior to the step of downloading, the method further comprises:
 - determining multimedia capabilities of the client; and
 - directing the remote server to download the multimedia in an optical format.
11. A method for delivering multimedia content on a network according to claim 10, wherein the step of determining multimedia capabilities of the client, resolution is determined.
12. A method for delivering multimedia content on a network according to claim 10, wherein the step of determining multimedia capabilities of the client, video codec type is determined.
13. A method for delivering multimedia content on a network according to claim 1 wherein the message is a pop-up desktop message.
14. A method for delivering multimedia content on a network according to claim 12, further comprising:
 - clicking on the message; and
 - directing the client to a web site.
15. A method for delivering multimedia content on a network according to claim 13, wherein the web site is at the remote server.
16. A method for delivering multimedia content on a network according to claim 13, further comprising playing back the multimedia file resident on the client in the context of the web site.
17. A computer program product for use in a computer system for delivering

multimedia content on a network, the computer program product comprising a computer usable medium having computer readable program code thereon, the computer readable program code comprising:

program code for downloading a multimedia file from a remote server to a client on a network, the downloading occurring in client's background; and

program code for displaying a message on a screen of the client after the multimedia file is resident in the client and additionally contingent upon the occurrence of a specified condition.

18. A computer program product according to claim 1, wherein the message is a pop-up desktop message.

19. A computer program product according to claim 1, wherein the computer readable program code further comprises:

program code for clicking on the message; and

program code for directing the client to a web site.

20. A computer program product according to claim 18 wherein the computer readable program code further comprises program code for playing back the multimedia file resident on the client in the context of the web site.

21. A system for delivering multimedia content on a network comprising:

a remote server operatively coupled to a network; and

a client operatively coupled to the network, whereby the server downloads a multimedia file to the client, the downloading occurring in the client's background, the client displaying a message on a screen of the client after the multimedia file is resident in the client and additionally contingent upon the occurrence of a specified condition.

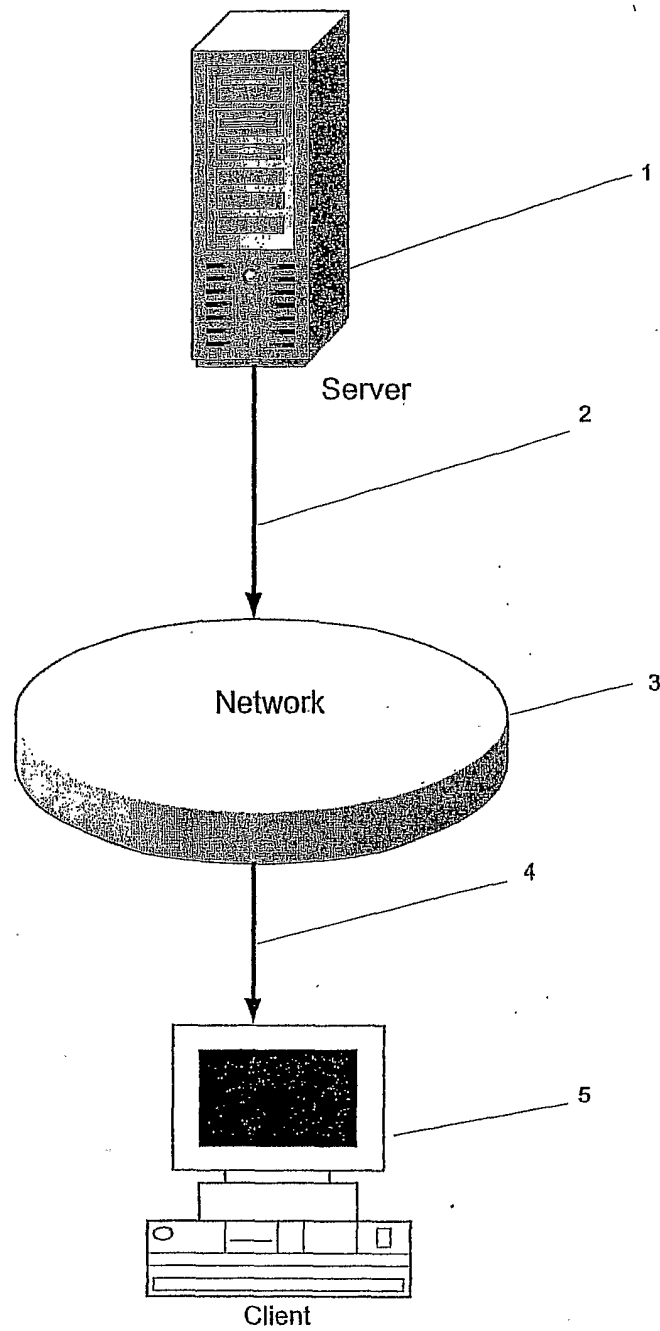


Figure 1

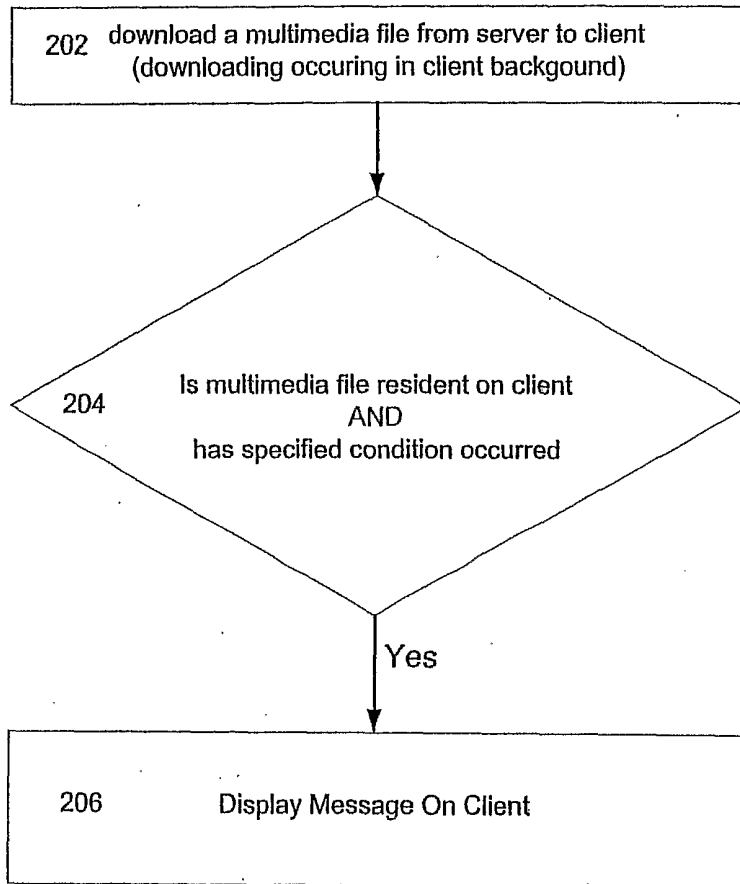


Figure 2

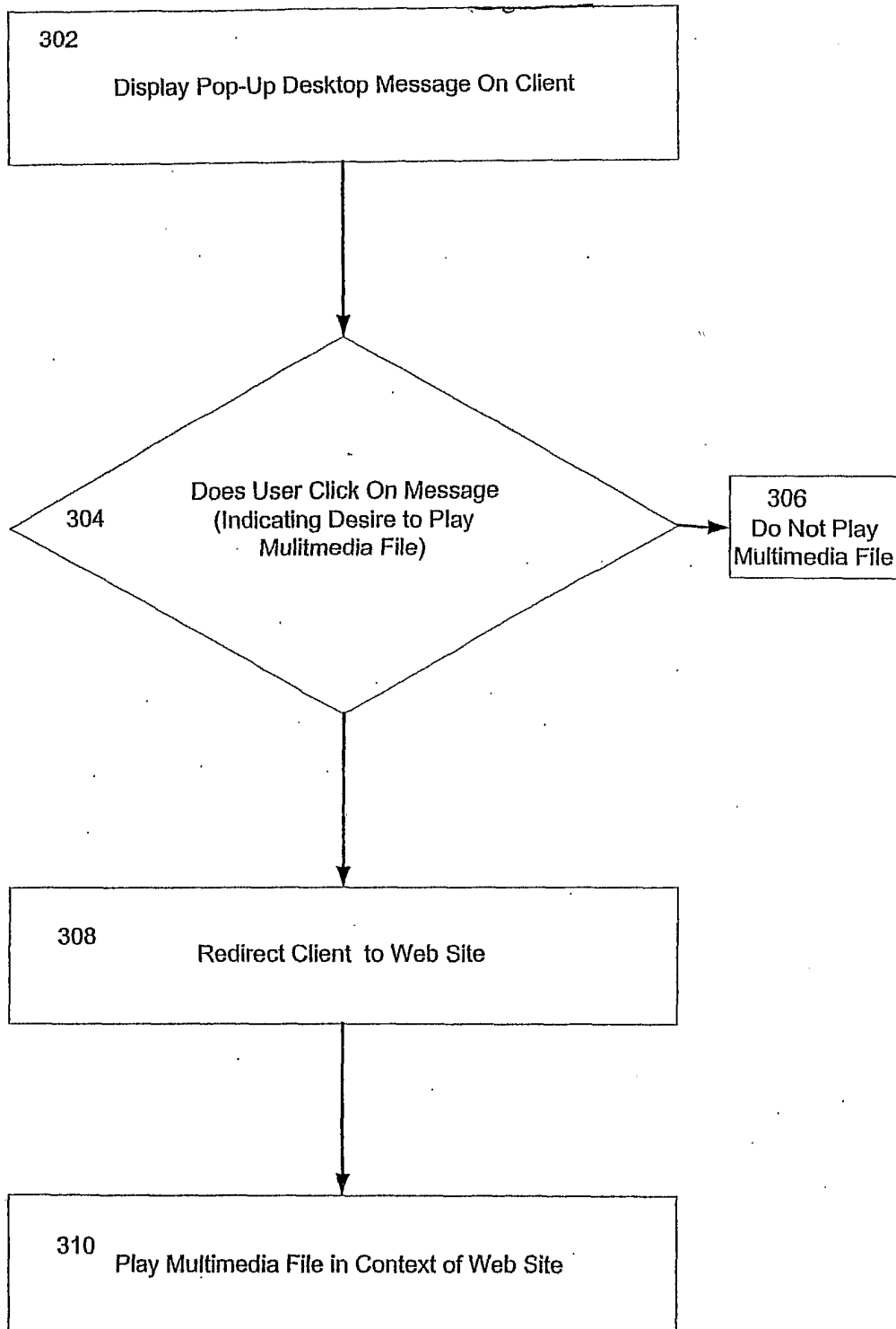


Figure 3